



# The Transition—

## An Ergonomically Sound Poseidon

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**E**rgonomics is the study of people and their work, and efficient ergonomics involves adjusting one's work environment to better fit the needs of the people doing their jobs. For pilots, this discipline directly correlates to ease of scanning the flight-station instruments. The P-3 community will transition to the P-8, and ergonomics will be important for the aircrew.

Our military began applying ergonomic principles during WWII, when pilot errors induced by complicated control panels caused casualties and mishaps. Studies revealed inconsistencies in pilot control panels in various aircraft added significant time to the pilot's scan. This confusion distracted them from the tasks at hand. In an everyday environment, a few seconds may not make much difference, but in combat, a few seconds can be critical—or fatal!

The longevity of the P-3's mission and production has resulted in upgrades that have affected the integrity of the flight station by moving various instrument gauges. The original P-3 was derived from the Lockheed L188 Electra, a successful airliner throughout the 1950s. It entered the Navy's inventory designated as a P3V in July 1962. Fifty years, one designation change (PV3 to P-3), three major model changes (P-3A, P-3B, P-3C), and multiple upgrades later, the P-3 remains a valuable asset. The current inventory consists of five different configurations of the P3C: the Update II.5, Update III, BMUP, BMUP+, and AIP. Some aircraft incorporate CIP (communications improvement program), a modification which allows all radio operations to be controlled through the GPS display unit (CDU-7000), while other AIP aircraft incorporate a CNS/ATM (communication navigation surveillance/air traffic management) upgrade, which allows even more communication and navigational devices to be controlled through the GPS display unit.


WHAT ALL OF THESE UPGRADES REALLY ADD UP to for your average P-3 pilot is spending the first hour of each flight adjusting to a different flight-station scan. Though the variations are subtle, the aviator must recognize that the flap indicator is now where the AOA gauge was, the airspeed indicator is on the left of the attitude indicator versus the right, and certain radios may have to be manually operated at their box instead of at the GPS display. A pilot also may need to transition from the EFDI and EHSD (digital attitude and compass display) back to analog gauges. To the untrained eye, these differences may seem minor. But, on-station at 200 feet, no pilot wants to mistake their airspeed indicator for their altimeter, and spend the extra three seconds looking for it while their vertical-speed indicator dips into a 500-foot-per-minute descent.

These changes not only affect the flight station but also the crew's mission effectiveness. With each upgrade, many modifications have been made to the stations used by the navigator, tactical coordina-

tor, and sensor operator. The selection and tuning of radios changes from aircraft to aircraft on the three most recent updates, and on the BMUP+ model, the internal-communication system requires an entirely different method of radio selection. Weapons selection and target-tracking hardware among these aircraft are also different, so much so that even when operating on two AIP aircraft, panels may be located in different positions. The reality of the situation is that a new P-3 navigator could complete all of their training on an AIP aircraft, but on their first actual prosecution of a submarine, find themselves searching for the equipment and switches they need because they're flying an Update III variant.

During the last eight years fighting the Global War on Terror, the P-3 Orion has operated in several hostile environments, providing battlespace surveillance to ground commanders. Though motivated crews are eager to provide this assistance, these flights are well outside the P-3's original intended design and open-ocean mission. There can be no question of the importance of efficient ergonomics and station familiarity in this combat situation, especially in a high-threat environment during the taking off and landing phases of flight.

Repetition generally makes people good at their jobs, and muscle memory is a huge contributor to the efficiency level at which the military operates. It would be an easy solution to upgrade all aircraft to the most advanced model, but money and mission necessity dictate otherwise. Most squadrons today have some mission-capable aircraft, and also have some training aircraft, which are used more for pilot airwork, navigation, aircraft systems training, and practice landings.

Though our aging platform is reaching its twilight tour, there is much hope for the P-3 combat aircrews. The P-8 Poseidon is projected to reach the fleet by 2013 and has potential to be the Navy's new standard for user-friendly aircraft, with standardized flight and crew stations. It will encompass all of the upgrades during the P-3s half-century life span, and serve as the modern day, long range, maritime-patrol aircraft. In the meantime, P-3 crews will continue to practice reliable scan patterns, taught in the early days of flight school, to keep operating the venerable Orion out to 2019 or beyond. 

LTJG. BRUNOEHLER FLIES WITH VP-45.